SONY

3-759-432-11 (1)

*1,

Video Cassette Recorder

Operating Instructions

Hi8

EV-C2000E
EV-C2000E UB/VP

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MC-Service

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Notice for customers in the United Kingdom
A moulded plug complying with BS 1363 is fitted to this equipment for your safety and convenience.

Should the fuse in the plug supplied need to be replaced, a 5 AMP fuse approved by ASTA or BSI to BS 1362, (i.e., marked with ⓐ or ⓑ mark) must be used.

If the plug supplied with this equipment has a detachable fuse cover, be sure to attach the fuse cover after you change the fuse. Never use the plug without the fuse cover. If you should lose the fuse cover, please contact your nearest Sony service station.

IMPORTANT
If the plug supplied is not suitable for the socket outlets in your home, it should be cut off and an appropriate plug fitted in accordance with the following instructions.

The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral
Brown: Live
As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.
Do not connect either wire to the earth terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.

WARNING
To prevent shock hazard, do not insert the plug cut off from the mains lead into a socket outlet. This plug cannot be used and should be destroyed.

Precautions

Safety

- Check that the unit's operating voltage is identical with your local power supply. The EV-C2000E/C2000E UB/C2000E VP operates on 220 – 240 V AC, 50 Hz.
- If anything falls into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- The unit is not disconnected from the mains as long as it is connected to the mains outlet, even if the unit itself has been turned off.
- Unplug the unit from the mains outlet if you do not intend to use it for an extended period of time. To disconnect the cord, pull it out by the plug, never by the cord.

Installing

- Allow adequate air circulation to prevent internal heat buildup.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Do not install the unit in an inclined position. It is designed to be operated in a horizontal position only.
- Keep the unit and cassettes away from equipment with strong magnets, such as microwave ovens or large loudspeakers.
- Do not place heavy objects on the unit.
- If the unit is brought directly from a cold to a warm location, moisture may condense inside the VCR and cause damage to the video head and tape. When you first install the unit, or when you move it from a cold to a warm location, wait for about one hour before operating the unit.

Caution

Television programmes, films, video tapes and other materials may be copyrighted. Unauthorised recording of such material may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorisation from the cable television transmitter and/or programme owner.

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Welcome!

Thank you for purchasing the Sony Video Cassette Recorder Hi8 (VCR). Here are some of the features you'll enjoy with your VCR:

- RC time code allows you to locate a desired tape programme easily
- JOG dial and SHUTTLE ring for easy search operations
- LANC jack to connect peripheral equipment such as another VCR which can then control this VCR

Compatible colour systems

This VCR is designed to record and playback using the PAL colour system. Recording of video sources based on other colour systems cannot be guaranteed.

Checking your model name

The instructions in this manual are for the EV-C2000E, EV-C2000E UB, and EV-C2000E VP. Check your model number by looking at the rear panel of your VCR. Any difference in operation is clearly indicated in the text, for example, *"EV-C2000E VP only."*

Hi8 (high eight) video system

Both Hi8 and standard 8 cassette tapes can be used with this VCR. Refer to the charts below for the compatibility between the Hi8 video system and the standard 8 system.

When playing a tape

This VCR automatically detects the type of tape being played, either Hi8 or standard 8. This VCR also automatically detects the tape speed (either SP or LP) the tape was recorded in.

Tape type	Recording format	Playback mode
Hi8 tape	Hi8 (high eight)	Hi8 (high eight)
	8 (standard 8 mm)	8 (standard 8 mm)
Standard 8 tape	8 (standard 8 mm)	8 (standard 8 mm)

When recording on a tape

You can set this VCR to record in either Hi8 or standard 8 format. See "Looking at menu options" on page **20**.

Tape type	Recording format	SET UP MENU setting
Hi8 tape	Hi8 (high eight)	AUTO
	8 (standard 8 mm)	OFF
Standard 8 tape	8 (standard 8 mm)	AUTO or OFF

Notes

- Hi8 recording or playback can only be done using a Hi8 tape.
- You cannot make Hi8 format recordings on standard 8 tapes.

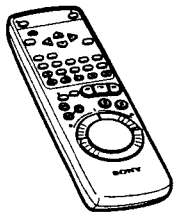
Saving a recording

Slide out the tab on the cassette so that the red colour appears.
To re-record on the cassette, slide the tab back.

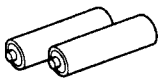
Step 1 Unpacking

Check that you have the following items:

- **Remote commander**

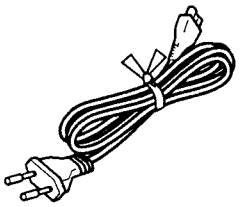


- **R6 (size AA) batteries**

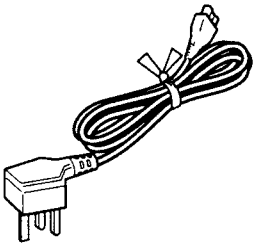


- **S video cable**

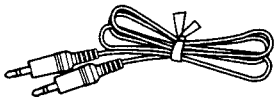
- **Mains lead (*EV-C2000E/C2000E VP only*)**



- **Mains lead (*EV-C2000E UB only*)**

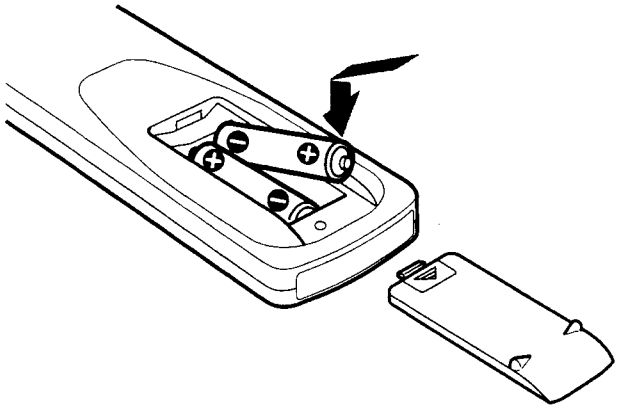


- **LANC cable**



Step 2 Setting up the remote commander

Insert two R6 (size AA) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.

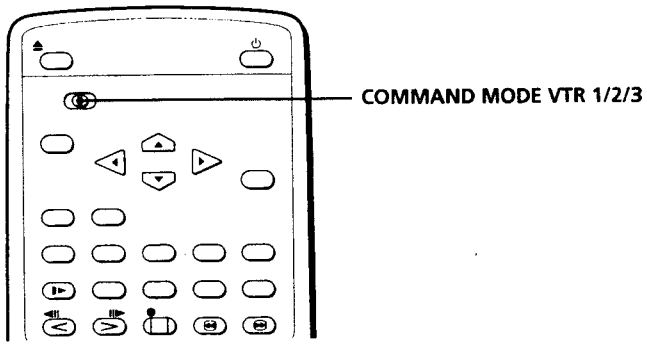


Notes

- With normal use, the batteries should last for approximately three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.

Setting the command mode

You can select three different positions for the command mode setting.



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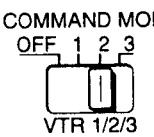


Turn on the VCR, then set the COMMAND MODE VTR OFF/1/2/3 selector on the VCR to "VTR 2."

If you set the selector to "OFF," the VCR won't receive signals from the remote commander.

2

Set the COMMAND MODE VTR 1/2/3 selector on the remote commander to "VTR 2."

Tip

- To control any other Sony VCR, set the COMMAND MODE selector on the remote commander and any other video equipment to a position other than one you have selected for this VCR.

Step 3 Connecting the VCR

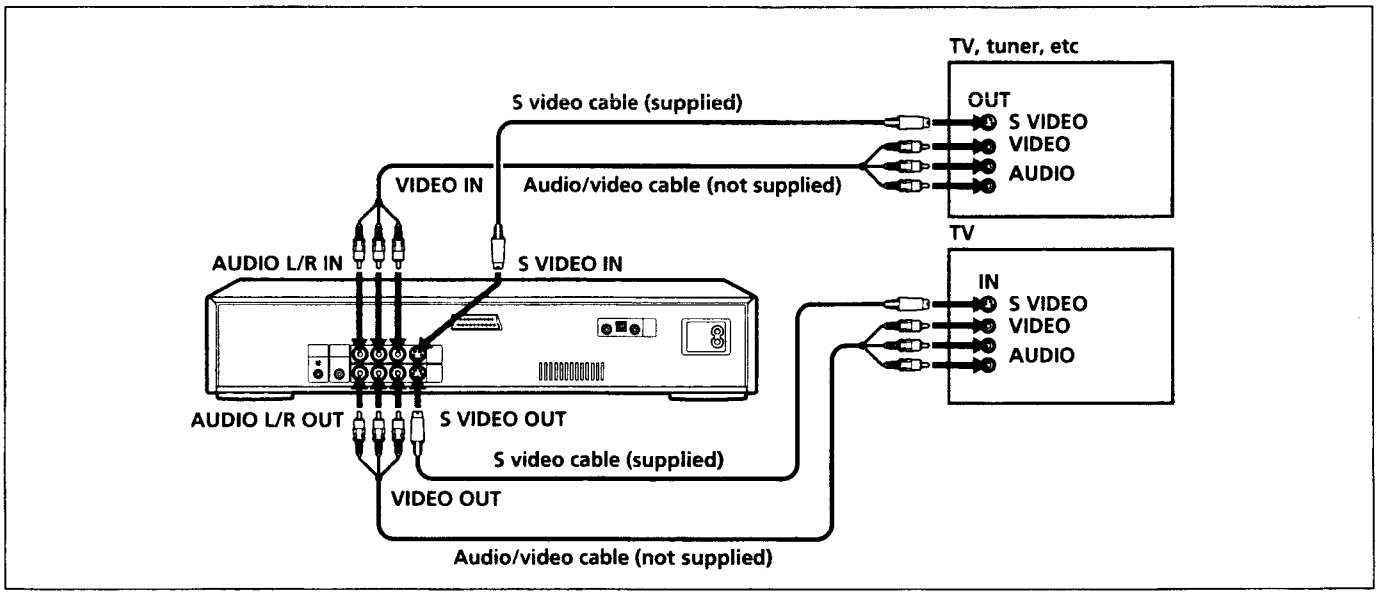
Before you use your VCR for the first time, you need to connect it to your TV. This VCR doesn't have a TV tuner. Therefore, to record TV programmes, connect equipment with a TV tuner to the LINE IN jacks or EURO-AV connector.
This section explains how to hookup and set up your VCR so that you can start enjoying it right away.

Before you get started

- Turn off the power to all equipment.
- Do not connect the mains lead until all of the connections are completed.
- Be sure you make connections firmly. Loose connections may cause picture distortion.
- If your TV doesn't match any of the examples provided, see your nearest Sony dealer or qualified personnel.

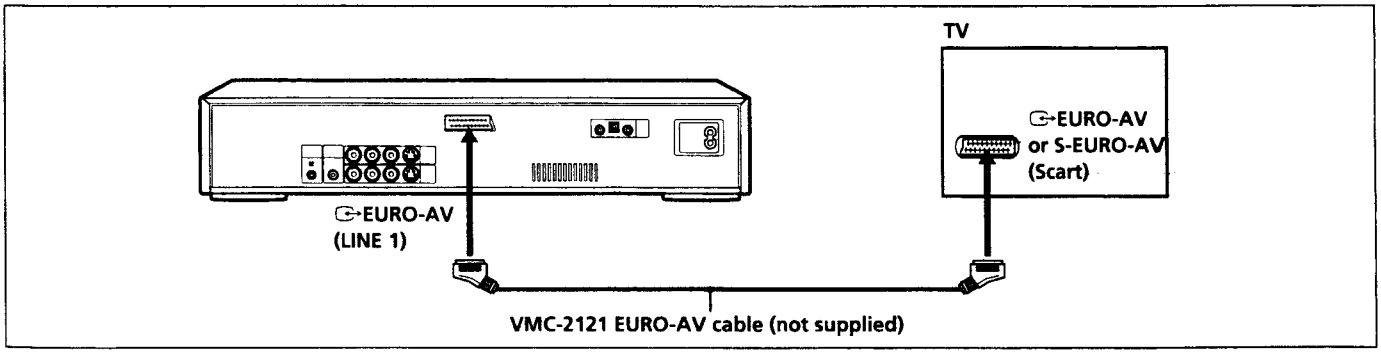
Audio/video (A/V) hookup

If your TV has an S video input connector, you will get a better picture using the supplied S video cable. If not, use an audio/video cable only.



EURO-AV hookup

If your TV has an S-EURO-AV (Scart) connector, you will get a better picture using this connection.



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If you've connected your VCR to an S-EURO-AV connector

Set EURO AV OUT in the SET UP MENU to S.

1) Press MENU.
2) Press CURSOR ▲/▼ to select SET UP MENU, then press EXECUTE.
3) Press CURSOR ▲/▼/◄/► to select EURO AV OUT and set to S.

Note

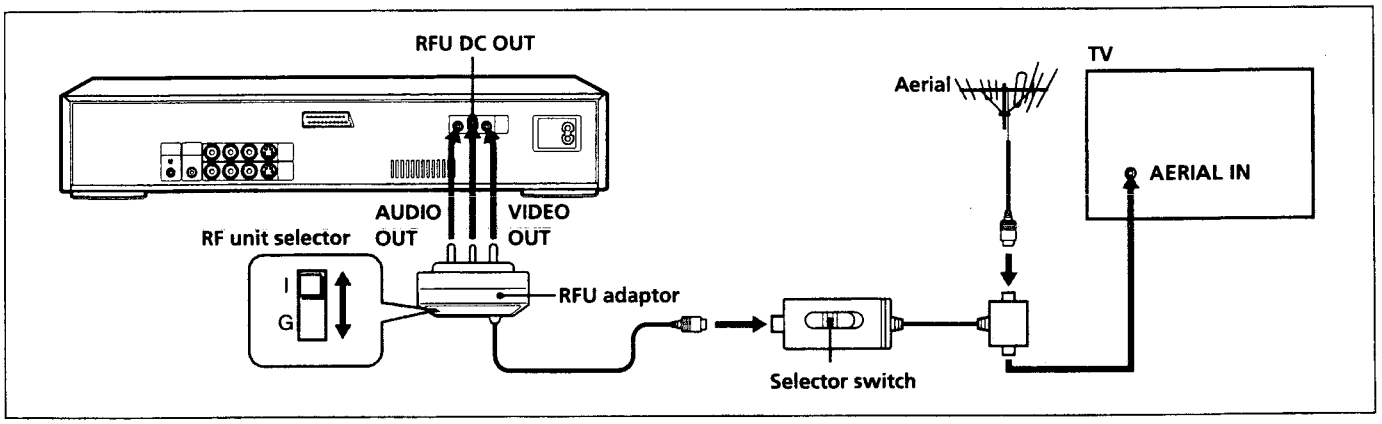
- If your TV has an S video/video selector, set it to the S video position.

To view the playback picture through the above hookup

Select video input for this VCR on the connected TV.

RFU DC OUT hookup

If your TV doesn't have audio/video (A/V) input jacks or a EURO-AV connector, make an RFU DC OUT connection using an RFU kit (RFU-89EKA, not supplied). However, you won't be able to record TV programmes using the connected TV's tuner. For this connection, refer to the instruction manual of the RFU kit as well.



To view the playback picture through this hookup

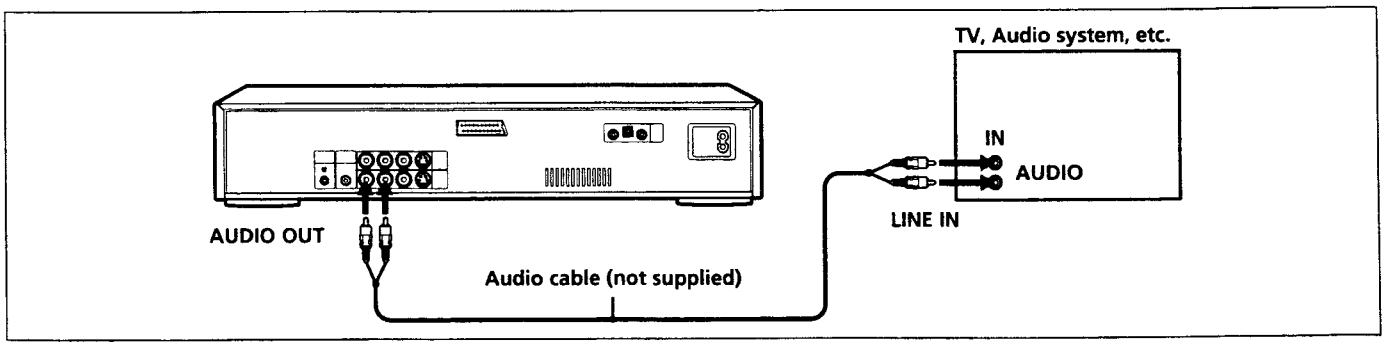
Set the RF unit selector of the RFU adaptor to I or G according to the TV system of your country, set the selector switch to VTR, and select a programme position on the TV that is not used to receive a TV station.

Note

- The sound you hear will be monaural even if you play back a stereo tape.

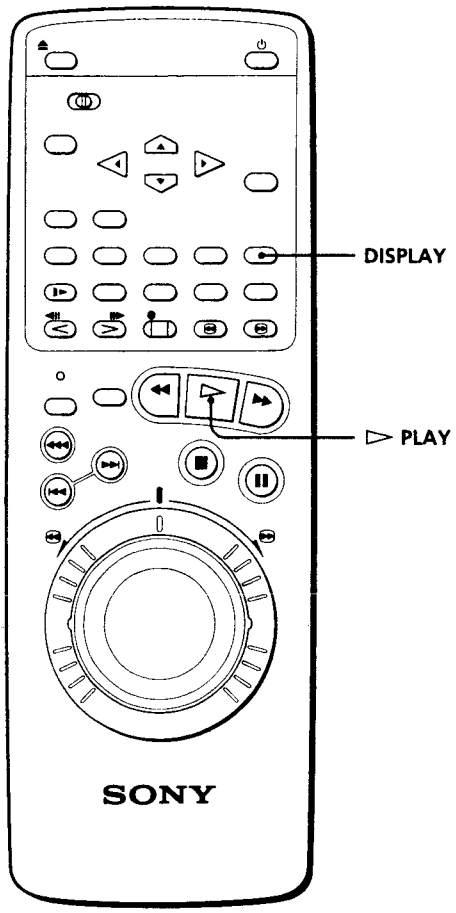
Connecting to a stereo system

You can improve sound quality by connecting to a stereo system as shown below.



Basic Operations

Playing a tape



This section shows you how to play back a video tape.

1 **Turn on your TV and tune in to the VCR:**

- If the TV is connected to the VCR using the EURO-AV cable, S video cable, or AV cable, set the TV to video input.
- If the TV is connected to the VCR using the RFU kit, set the TV to the programme position for the VCR.

2 **Insert a tape.**
The VCR turns on automatically.

3 **Press ▷ PLAY to start playing.**
When the tape reaches the end, the VCR automatically rewinds it to the beginning. (The power remains on.)

Additional tasks

To	Press
Stop play	■ STOP
Pause play	❚❚ PAUSE
Resume play after pause	❚❚ PAUSE or ▷ PLAY
Search forward	▶▶ FF during playback or ⊙ SEARCH
Search backward	◀◀ REW during playback or ⊙ SEARCH
Fast-forward the tape	▶▶ FF during stop
Rewind the tape	◀◀ REW during stop
Rewind the tape at high speed	◀◀◀ HI-SPEED REW

Notes

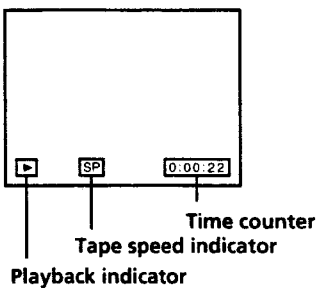
- When a tape is reinserted, the counter returns to "0H00M00S."
- The counter will not work on tape portions with no recording.

Tip

- For further information on searching and playback functions, see "Playing/ searching at various speeds" on page **14**.

Displaying the remaining tape length and time counter

Press DISPLAY to turn the display on or off.



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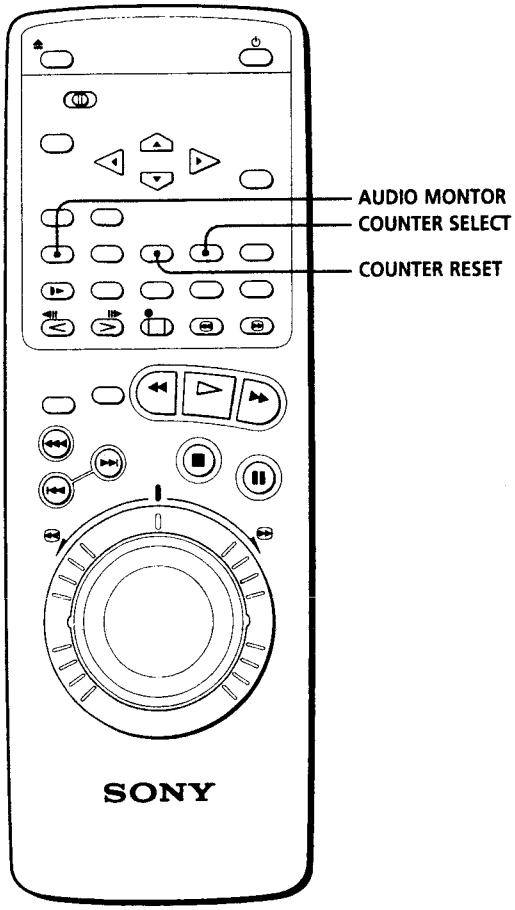
Using the time counter

At the point on a tape that you want to find later, press COUNTER RESET to reset the counter to "0H00M00S." When you rewind or advance the tape to this point, refer to the counter.



Checking the remaining tape length

To check the remaining tape length, press COUNTER SELECT twice in succession during recording or playback. At the first press, the time code appears in the display window. At the second press, the remaining tape length appears.
To display the time counter, press COUNTER SELECT again.

Displaying the DATA CODE

Set DATA CODE to ON in the SET UP MENU and display the counter in the display window. When you play back tapes that have been recorded with DATA CODE signals, the date, month, and year of the recording are displayed on the TV screen.

Selecting playback sound of stereo/bilingual tapes

Press AUDIO MONITOR on the remote commander to select the desired sound. Each press of the button changes the display on the TV screen. When you play a tape recorded in stereo or with a bilingual sound track, the Hi-Fi STEREO indicator on the VCR lights up.

Stereo programmes

To listen to	Press AUDIO MONITOR until the TV screen shows
Stereo sound	"STEREO"
Left channel	"L"
Right channel	"R"

Bilingual programmes

To listen to	Press AUDIO MONITOR until the TV screen shows
Main sound	"MAIN"
Sub sound	"SUB"
Main and sub sounds	"MAIN/SUB"

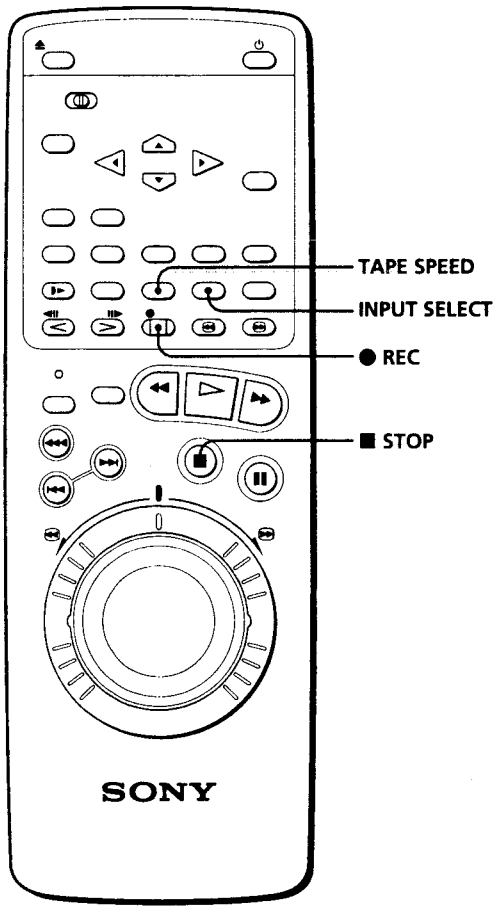
Notes

- The remaining tape length may not be displayed correctly when using the following types of tapes:
  - pre-recorded commercial tapes
  - tapes that are not reeled properly at the beginning
  - tapes that contain unrecorded segments or portions recorded with different tape speeds
  - poor-quality or non-standard tapes
  - cleaning cassettes
- "–H– –M" appears in the display window if the VCR cannot detect the remaining tape length.
- The remaining tape length counter is intended for rough time measurement only.

Recording TV programmes

Notes

- While recording a TV programme, make sure to leave the TV on.
- If you have connected your TV to this VCR using the RFU kit, you can't record TV programmes by using the TV's tuner.
- If you insert a cassette with its safety tab slid to show the red portion, the VCR ejects it when you press ● REC.



This section shows how to record TV programmes in the most basic way. This VCR doesn't have a TV tuner. To record TV programmes, connect equipment with a TV tuner to the LINE IN jacks or EURO-AV connector.

1 **Turn on your TV and tune in to the VCR:**

- If the TV is connected to the VCR using the EURO-AV cable, S video cable, or AV cable, set the TV to video input.
- If the TV is connected to the VCR using the RFU kit, set the TV to the programme position for the VCR.

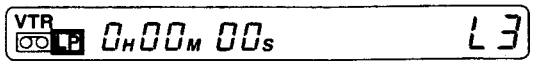
2 **Insert a tape with its safety tab slid back so that the red portion is not visible.**

3 **Press INPUT SELECT until the input of the connected equipment appears in the display window.**

4 **Select a desired programme position on the connected equipment.**

5 **Press TAPE SPEED to select the tape speed, SP (standard play) or LP (long play).**

See "To select tape speeds" on the next page.



6 **Press ● REC to start recording.**

When the tape reaches the end, the VCR automatically rewinds it to the beginning.

To stop recording

Press ■ STOP.

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Note

- You can't watch another TV programme while recording programmes using the TV's tuner.

Tips

- You can cut out an unwanted scene while recording. See "Shuttle editing" on page **21** for details.
- The display appears on the TV screen indicating information about the tape, but the information will not be recorded on the tape.

To select tape speeds

When recording, select either SP or LP. LP provides recording time twice as long as SP. However, SP provides better picture quality. You can mix SP and LP on the same tape. When playing back, the VCR automatically detects the tape speed. See the table below for the maximum recording/playback time at each speed.

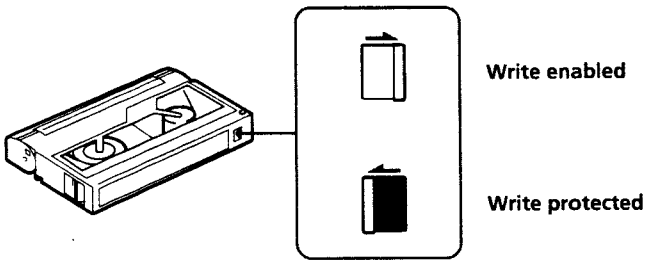
Tape type	Maximum recording/playback time	
	SP	LP
E5/P5-30	30 min.	1 hr.
E5/P5-60	1 hr.	2 hrs.
E5/P5-90	1 hr. 30 min.	3 hrs.
E5-120	2 hrs.	4 hrs.

If you use other types of tapes than those listed above, the remaining tape length may not be displayed correctly.

Saving a recording

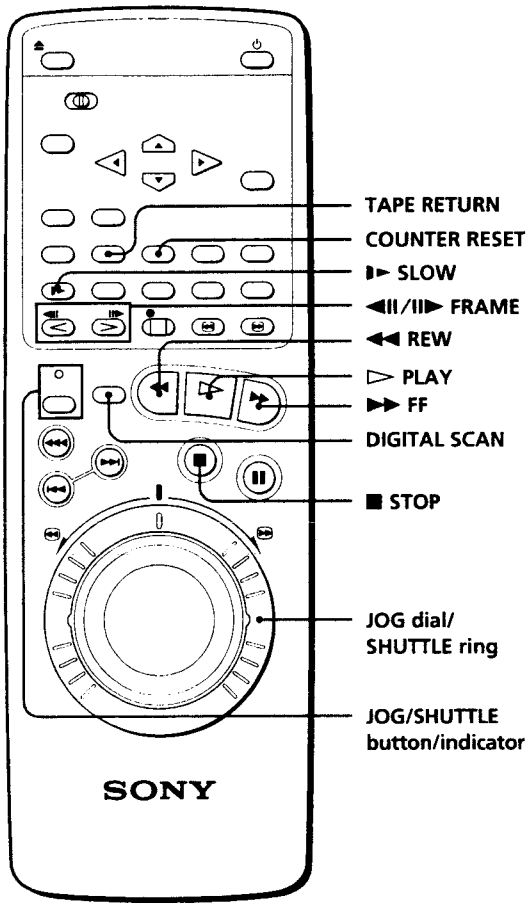
Video tapes have a safety tab to protect against accidental recording. To prevent accidental erasure of a recording, slide out the tab on the cassette so that the red portion is visible. A tape with its safety tab in this position ejects if you try to record on it.

To re-record on a tape, slide the tab so that the red portion is not visible.



Additional Operations

Playing/searching at various speeds



You can play back a tape at various speeds: high-speed, slow motion, frame by frame and so on. These options are also useful for searching for a specific point during playback. The sound is muted during these operations. When you use the JOG dial/SHUTTLE ring on the remote commander, first press the JOG/SHUTTLE button, then make sure to turn on the JOG/SHUTTLE indicator.

Playback options	Operation	To resume normal playback
Playing at various speeds: Normal speed One-fifth the normal speed double the normal speed High speed	During playback, turn the SHUTTLE ring right or left to: 1 1/5 ×2 ►► or ◄◄	Release the ring and press ▷ PLAY.
Viewing the picture during fast-forward or rewind	During fast-forward, press ►► FF. During rewind, press ◄◄ REW.	Press ▷ PLAY.
Locking in a high-speed picture	During fast-forward or rewind, press DIGITAL SCAN.	Press ▷ PLAY.
Locking in a slow-motion picture	During playback or pause, press I► SLOW. To change direction, press ◄II FRAME (backward) or II► FRAME (forward).	Press ▷ PLAY.
Playing frame by frame	During pause, press II► FRAME to advance the picture one frame or ◄II FRAME to reverse the picture one frame.	Press ▷ PLAY.
Playing in reverse	During playback, press ◄II FRAME.	Press ▷ PLAY.
Replaying a scene	During playback, first press COUNTER RESET when you come to a scene you want to replay later. When you are ready to replay the scene, press ■ STOP. Then press TAPE RETURN and ▷ PLAY in quick succession.	——
Rewinding and restarting play	During stop, press ▷ PLAY on the VCR while pressing down ◄◄ REW or ◄◄◄ HI-SPEED REW on the VCR.	——

Notes

- When you are displaying the TIME CODE or remaining tape length on the display window, you can't use the TAPE RETURN button.
- When rewinding at high speed, you will not see the time counter. After the tape is rewound to the beginning, the time counter displays "0H00M00S."

Tip

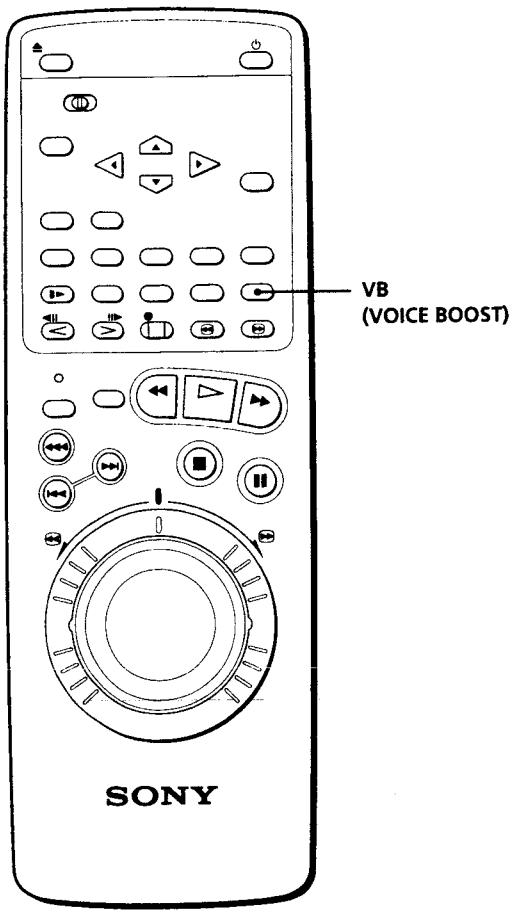
- You can improve picture quality during playback at various speeds. See "Adjusting the tracking" on page **16**.

Listening more easily to conversation recorded with a camcorder

When you play a tape recorded with a camcorder, you can reduce external noises (such as wind and traffic sounds), and amplify the human voice portion of the audio by using the VOICE BOOST function.

1 Press VB (VOICE BOOST) on the remote commander.
The VB (Voice Boost) indicator lights up on the VCR.

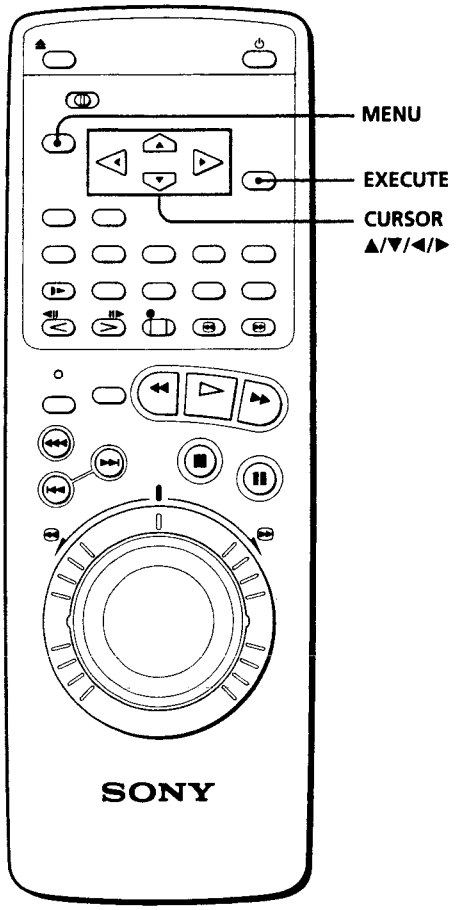
2 To listen to a tape in normal audio, press VB (VOICE BOOST) again to turn it off.
The VB (Voice Boost) indicator on the VCR goes out.



Note

- If you use the VOICE BOOST function on any tapes other than those recorded on a camcorder, the audio portion of the tape will be difficult to hear.

Adjusting the tracking

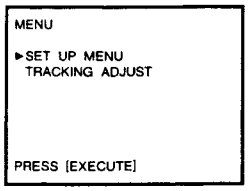


Notes

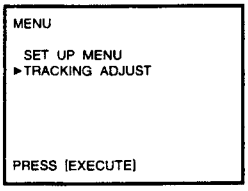
- If the picture flickers when adjusting the tracking, return the tracking bar (■) to the center position and try again.
- When viewing in reverse slow motion, even if you have adjusted the tracking, the picture might flicker and the colours might not be clear.
- Distortion may occur if the tape were recorded poorly.

This VCR automatically adjusts the tracking only during normal playback mode. If distortion occurs when in the VCR is performing forward slow motion, reverse slow motion, or double speed playback, you can manually adjust the tracking.

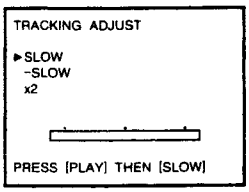
1 **Press MENU.**



2 **Press CURSOR ▲/▼ to move the cursor (►) to TRACKING ADJUST.**

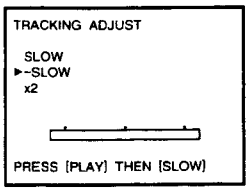


3 **Press EXECUTE.**

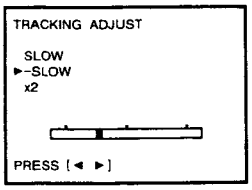


4 **Press CURSOR ▲/▼ to move the cursor (►) to the tracking adjustment position you wish to select (SLOW, – SLOW, ×2).**

- To adjust tracking when in forward slow motion, select SLOW.
- To adjust tracking when in reverse slow motion, select –SLOW.
- To adjust tracking when in ×2 (double speed), select ×2.



5 **Press CURSOR ◄/► to move the tracking bar (■) to adjust the tracking for the mode you are in.**

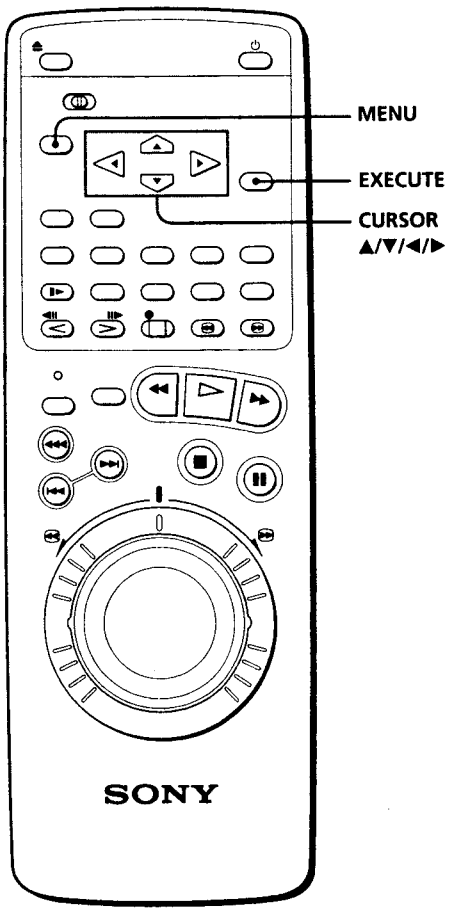


6 **Press EXECUTE.**

Searching using the index function – index search

Notes

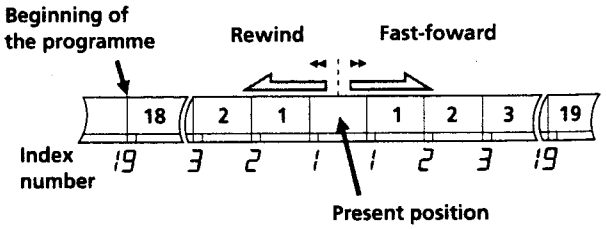
- You can't mark an index signal when you start recording from recording pause. However, while in recording pause, you can mark an index signal if the input is changed.
- An index signal is a 10-second preview of the recorded picture. If the VCR finds an index signal other than signal you specified during searching, the 10-second preview of the index signal that the VCR just found appears on the TV screen. Then the VCR starts searching for the next index signal. While the VCR searches, the last scene of the previous index signal remains on the TV screen. The VCR continues to search and to display each index it locates until the VCR finally finds the specified index signal.



An index signal is automatically recorded at the beginning of a scene when you start recording. You can find specific scenes easily using the marks (index signals). There two kinds of index searches you can make, "normal" and "date." You can use the "date" index for read only.

How the index function works

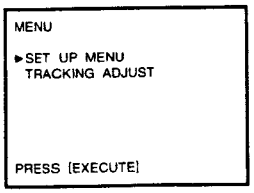
The index works as a divider between scenes, and is not numbered. So, when you specify the index signal later, you have to specify the relative position from the current position.



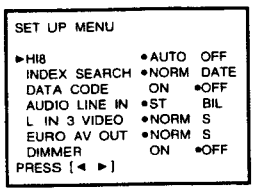
Locating an index by number – "normal" INDEX SEARCH

Locate an index by indicating how many index signals ahead or behind the scene is from the tape's current position. You can specify up to 19 index signals either ahead or behind the current position. See "Looking at menu options" on page **20** to set the INDEX menu option.

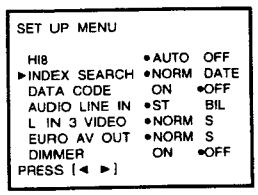
1 **Insert an indexed tape into the VCR, then press MENU.**



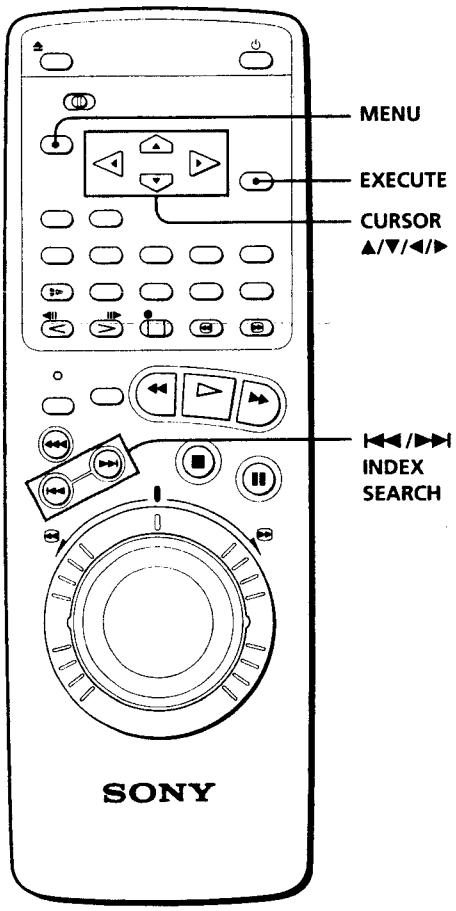
2 **Press CURSOR ▲/▼ to move the cursor (►) to SET UP MENU, then press EXECUTE.**


SET UP MENU
►HI8 •AUTO OFF
INDEX SEARCH •NORM DATE
DATA CODE ON •OFF
AUDIO LINE IN •ST BIL
L IN 3 VIDEO •NORM S
EURO AV OUT •NORM S
DIMMER ON •OFF
PRESS [◄ ►]

3 **Press CURSOR ▲/▼/◀/▶ to move the cursor (►) to INDEX SEARCH, then select NORM.**

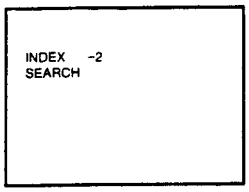

SET UP MENU
HI8 •AUTO OFF
►INDEX SEARCH •NORM DATE
DATA CODE ON •OFF
AUDIO LINE IN •ST BIL
L IN 3 VIDEO •NORM S
EURO AV OUT •NORM S
DIMMER ON •OFF
PRESS [◄ ►]

Searching using the index function – index search (continued)



4 **Press I◀◀/▶▶I INDEX SEARCH repeatedly until the index number you want appears on the TV screen:**

- To locate succeeding scenes, press ▶▶I INDEX SEARCH.
- To locate preceding scenes, press I◀◀ INDEX SEARCH.

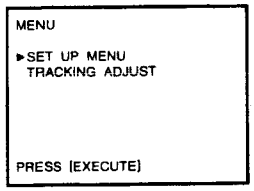


The VCR starts searching and the index number on the TV screen counts down to zero in numerical order. Playback starts automatically from the point.

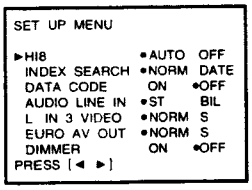
Locating an index by date – "date" INDEX SEARCH

You can locate a desired scene by date if the tape you are using was recorded on by a camcorder that has a date code function. You can call up to 19 index points by searching for DATA CODE signals. See "Looking at menu options" on page **20** to set the INDEX menu option.

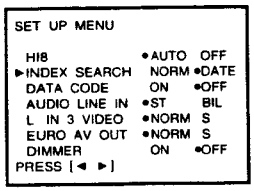
1 **Insert an indexed tape into the VCR, then press MENU.**



2 **Press CURSOR ▲/▼ to move the cursor (▶) to SET UP MENU, then press EXECUTE.**

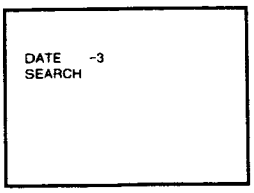

SET UP MENU
▶HI8 •AUTO OFF
INDEX SEARCH •NORM DATE
DATA CODE ON •OFF
AUDIO LINE IN •ST BIL
L IN 3 VIDEO •NORM S
EURO AV OUT •NORM S
DIMMER ON •OFF
PRESS [◀ ▶]

3 **Press CURSOR ▲/▼/◀/▶ to move the cursor (▶) to INDEX SEARCH, then select DATE.**


SET UP MENU
HI8 •AUTO OFF
▶INDEX SEARCH NORM •DATE
DATA CODE ON •OFF
AUDIO LINE IN •ST BIL
L IN 3 VIDEO •NORM S
EURO AV OUT •NORM S
DIMMER ON •OFF
PRESS [◀ ▶]

4 **Press I◀◀/▶▶I INDEX SEARCH repeatedly until the index number you want appears on the TV screen:**

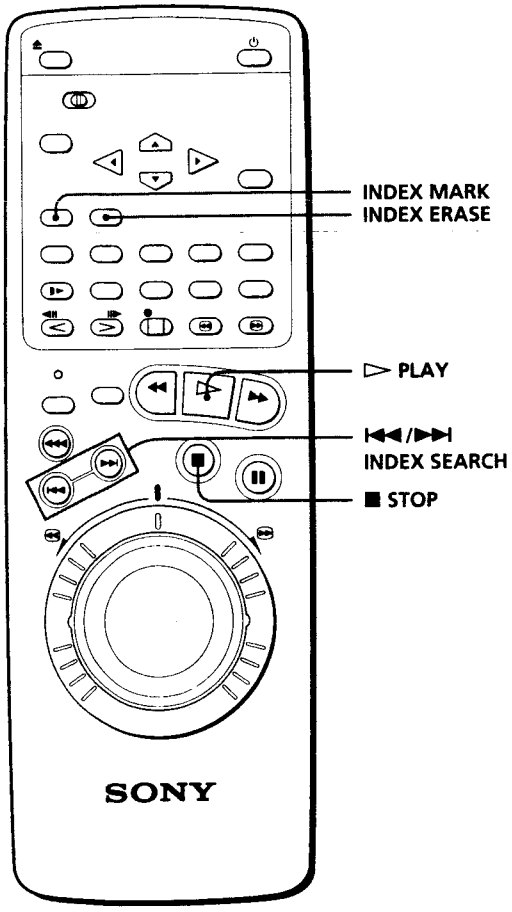
- To locate succeeding scenes, press ▶▶I INDEX SEARCH.
- To locate preceding scenes, press I◀◀ INDEX SEARCH.



The VCR starts searching and the index number on the TV screen counts down to zero in the order in which the indices were dated. Playback starts automatically from that point.

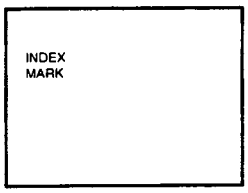
Notes

- Leave an interval between indices of at least 2 minutes for SP mode, and at least 4 minutes for LP mode, so that the VCR can detect the signals correctly.
- You can't mark or erase index signals on cassettes that have their safety tab slid to show the red portion.
- You can't erase index signals marked at the beginning of the tape, or those marked by a camcorder or other VCR.
- If you mark or erase an index signal on a tape that has been marked with date codes, the date codes may be erased.



Marking index signals

You can mark an index signal anywhere on a tape, so that you can easily find the specific scene later on. Press INDEX MARK while in recording or playback mode.



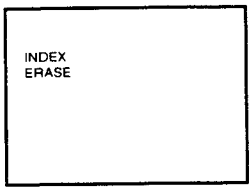
This VCR can't mark a "date" index signal.

Erasing index signals

You can remove any unwanted "normal" index signals. However, you can't erase "date" index signals.

1 **Press ⏮/⏭ INDEX SEARCH while in stop or playback mode.**
The VCR rewinds or fast-forwards the tape automatically, and playback starts when the index number indicated on the TV screen reaches "0."

2 **Press INDEX ERASE during the 10-second preview for the index you want to erase.**



To stop erasing index signals
Press ▷ PLAY or ■ STOP.

Writing the RC time code

Notes

- The TIME CODE WRITE function on this VCR and that on professional-level VCRs are not compatible.
- If you use a tape that has been recorded in both SP and LP tape speeds, the TIME CODE WRITE function may not work properly.

Tip

- To perform precise editing using the TIME CODE function, enter the time code on the entire portion of the tape you want to edit.

With the RC (Rewritable Consumer) time code, you can easily locate a desired tape programme and perform more precise editing by observing it. This function inserts frame position signals on the tape, thereby indexing the portion (through numbers).

Writing the RC time code on a playback tape

1 **Rewind the tape to the beginning.**

2 **Press ▷ PLAY, then press II PAUSE.**

3 **Press TIME CODE WRITE on the VCR.**
A black band may appear at the bottom of the screen. This black band won't appear on the events you're going to edit.

4 **Press II PAUSE to start playback.**
Time code information is automatically written onto the tape.

To stop the RC time code writing
Press ■ STOP.

Looking at menu options

The SET UP MENU provides you with various options to set up and customise your VCR. See the table below for the available menu choices. Initial settings are indicated in bold letters.

Menu choices

Menu option	Set this option to
Hi8	• **AUTO** when you want to record a Hi8 tape in the Hi8 format. • OFF when you want to record a Hi8 tape in the standard 8 mm format.
INDEX SEARCH	• **NORM** to search for index signals in numerical order. • DATE to search for index signals by date.
DATA CODE	• **OFF** not to have the day, month, year, entered on the tape. • ON to have the day, month, year, entered on the tape. (Use if your camcorder has this function.)
AUDIO LINE IN	• **ST** to listen to and record stereo sound using the AUDIO LINE IN jacks. • BIL to listen to and record bilingual programmes using the AUDIO LINE IN jacks.
L IN 3 VIDEO	• **NORM** if you have connected the video output jack of the other VCR to the LINE IN 3 VIDEO jack of this VCR. • S if you have connected the S video output connector of the other VCR to the LINE IN 3 S VIDEO connector of this VCR.
EURO AV OUT	• **NORM** when using a EURO-AV (Scart) cable. • S when using a EURO-AV (Scart) cable connected to a TV with an S-EURO-AV (Scart) connector.
DIMMER	• **ON** to dim the display window. • OFF to brighten it.

Editing

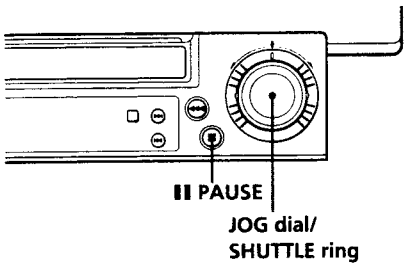
Shuttle editing

This section shows you how to edit VCR recordings in the most basic way: shuttle editing. The VCR also provides the following ways of editing:

- Editing to or from another VCR or camcorder—"Editing with another VCR" (page **23**).
- Editing via the LANC or CONTROL S jacks of two VCRs—"Synchronized editing" (page **25**).

Note

- During shuttle editing, use the JOG dial/SHUTTLE ring on the VCR, not on the remote commander.



During recording

If you want to cut out events such as TV commercials, you can pause recording and play back the tape in the reverse direction until the beginning of an unwanted event is reached. Then, record over it. This feature only works from the VCR.

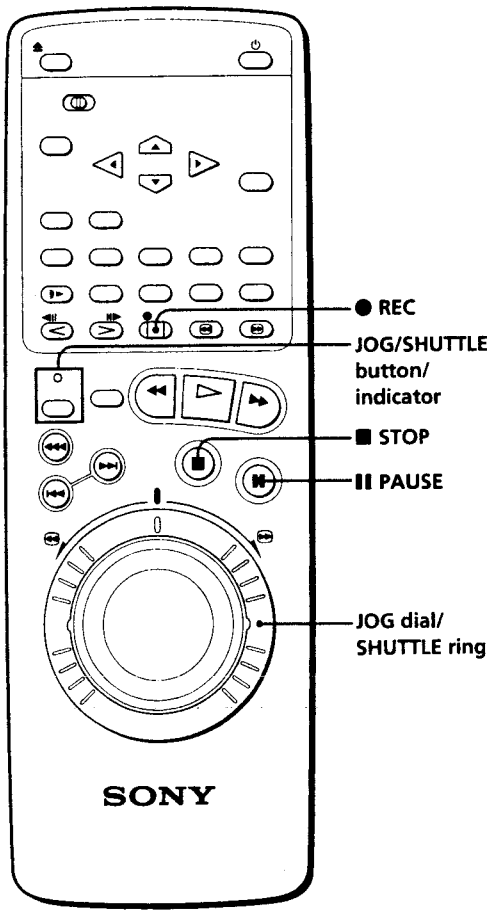
1 **Press II PAUSE during recording.**
The VCR enters recording pause mode.

2 **Turn the JOG dial/SHUTTLE ring on the VCR counterclockwise to rewind the tape until the unwanted event appears.**
Turn the JOG dial/SHUTTLE ring to the desired playback speed. When you release the dial or ring, the VCR enters recording pause mode.

3 **Press II PAUSE when a desired event appears on the screen.**
Recording starts.

To stop recording
Press ■ STOP.

Shuttle editing (continued)



Note

- The picture may be distorted for a moment at the cut-out point (recording end point).

During playback

You can re-record onto an unwanted portion of a pre-recorded tape. When you use the JOG dial/SHUTTLE ring on the remote commander, first press the JOG/SHUTTLE button, then make sure to turn on the JOG/SHUTTLE indicator.

1 **When an unwanted event appears during playback, press II PAUSE.**
The VCR enters playback pause mode.

2 **Turn the JOG dial/SHUTTLE ring until the beginning of the unwanted event appears on the screen.**
Turn the JOG dial/SHUTTLE ring to the desired playback speed. When you release the dial or ring, the VCR enters playback pause mode.

3 **Press ● REC on the VCR or the remote commander.**
The VCR enters recording pause mode.

4 **Select a new programme for re-recording.**

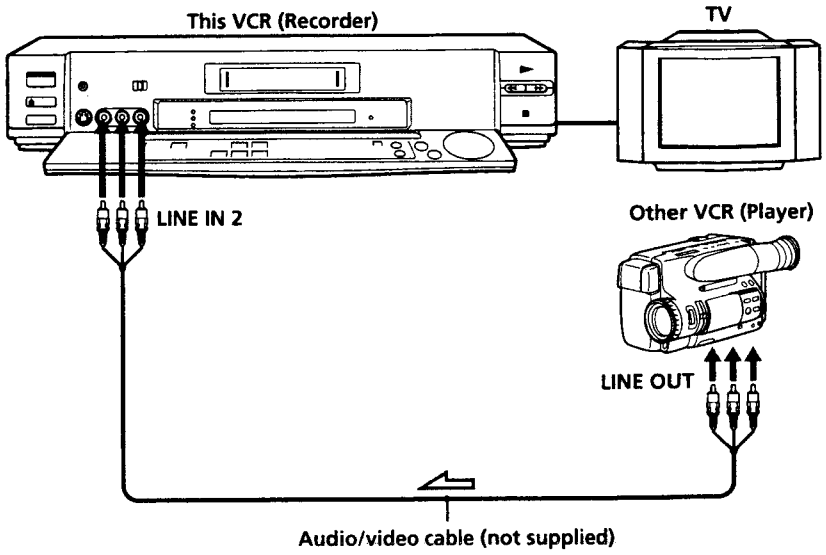
5 **Press II PAUSE when the programme you want to record appears on the screen.**
Recording begins.

To stop recording
Press ■ STOP.

Editing with another VCR

This section shows you how to edit to or from another VCR or camcorder. You can make a copy of a tape using this VCR for recording or playback.

How to hook up to record on this VCR



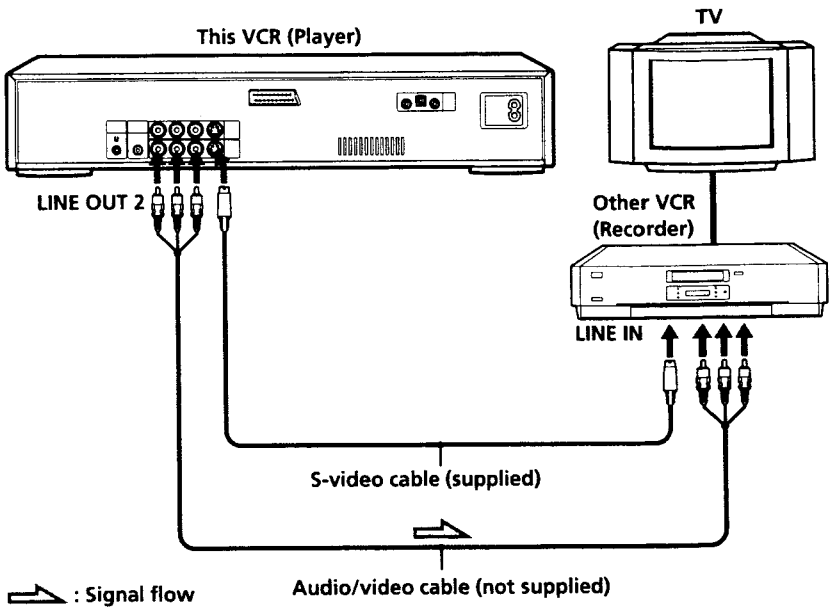
Notes

- When using the LINE IN 3 S VIDEO connector, set L IN 3 VIDEO to S in the SET UP MENU.
- If you use the LINE IN 2 VIDEO jack and LINE IN 2 S VIDEO connector at the same time, the LINE IN 2 S VIDEO connector takes priority.
- When connecting the other VCR, don't simultaneously connect the LINE IN and LINE OUT jacks on your VCR to the line input and line output jacks on the other VCR. A noise may occur if you do this.

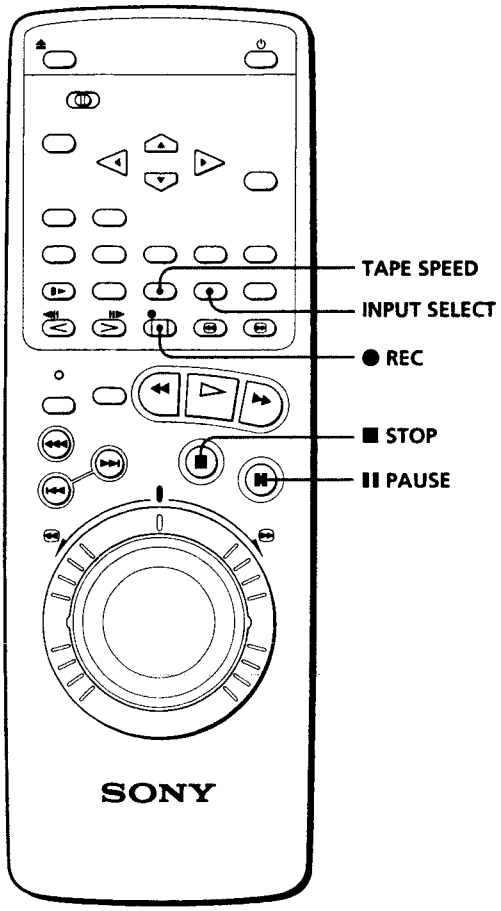
Tips

- Make sure that you connect the plugs to jacks of the same colour.
- If the playback VCR is a monaural type and you use the LINE IN 2 jacks on the front of the VCR, connect the white plug to the AUDIO L (white) jack.

How to hook up to record to another VCR



Editing with another VCR (continued)



Note

- Make sure that the safety tab is in the correct position. If the playback VCR is a VHS model, make sure that the safety tab on the source tape has been removed.

Tips

- To make your editing more precise, release the VCRs from pause by pressing II PAUSE buttons on the VCRs, not on the remote commander.
- To cut out unwanted events while editing, press II PAUSE on this VCR when an unwanted scene begins. When it ends, press II PAUSE again to resume recording (assemble editing).

Operation (when recording on this VCR)

Before you start editing

- Press INPUT SELECT to display "L2" in the display window.
- Press TAPE SPEED to select the recording tape speed (SP/LP).
- If the other (playback) VCR has an EDIT function, set it to ON.

1 **Insert a source tape into the other (playback) VCR. Search for the point to start playback and set the VCR to playback pause mode.**

2 **Insert a tape for recording into this (recording) VCR. Search for the point to start recording and press II PAUSE.**

3 **Press ● REC on this VCR and set it to recording pause mode.**

4 **Press the II PAUSE buttons on both VCRs to start editing.**
For best results, press the pause button on the playback VCR just before pressing II PAUSE on this VCR.

To stop editing

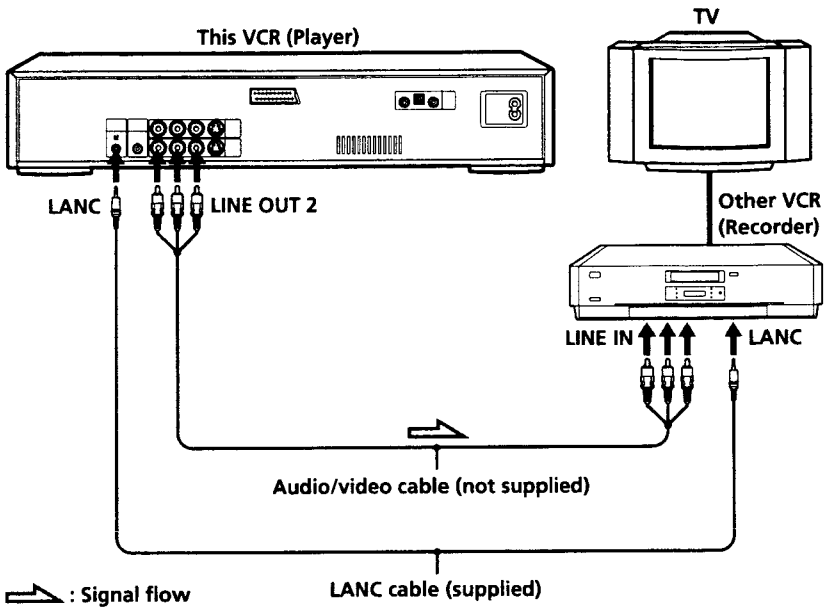
Press the ■ STOP buttons on both VCRs.

MC-Service

Synchronized editing

If the recording VCR has a LANC or CONTROL S jack, connect the VCRs via the LANC or CONTROL S jacks. This additional connection lets you control both VCRs from one VCR for easier editing.

How to hook up via the LANC jacks



Notes

- If the recording VCR has an S video input connector, use the supplied S video cable. This connection gives you a picture of higher quality than using the video cable.
- When using this VCR for playback, press EDIT ON/OFF on the VCR.
- You can't do synchronized editing on the VCRs that do not have a LANC jack and the LANC mode M or equivalent function.

Tip

- If you use the LANC jacks on the front and rear panels at the same time, the LANC jack on the front panel has priority.

Setting the LANC mode

The LANC mode setting determines which VCR controls which. The LANC mode of this VCR is set to S. Set the LANC mode to M on the other VCR, and control this VCR from the other VCR.

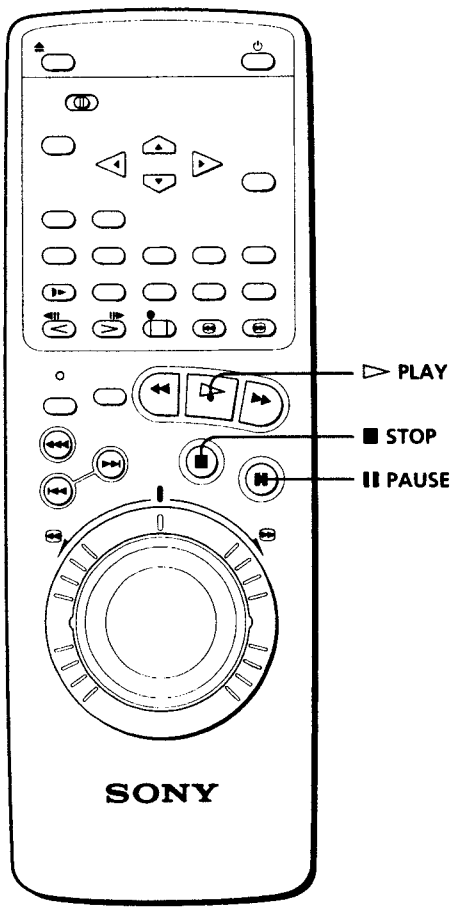
About LANC

LANC stands for Local Application Control System. The LANC jack is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as jacks indicated as CONTROL L or REMOTE.

Synchronized editing (continued)

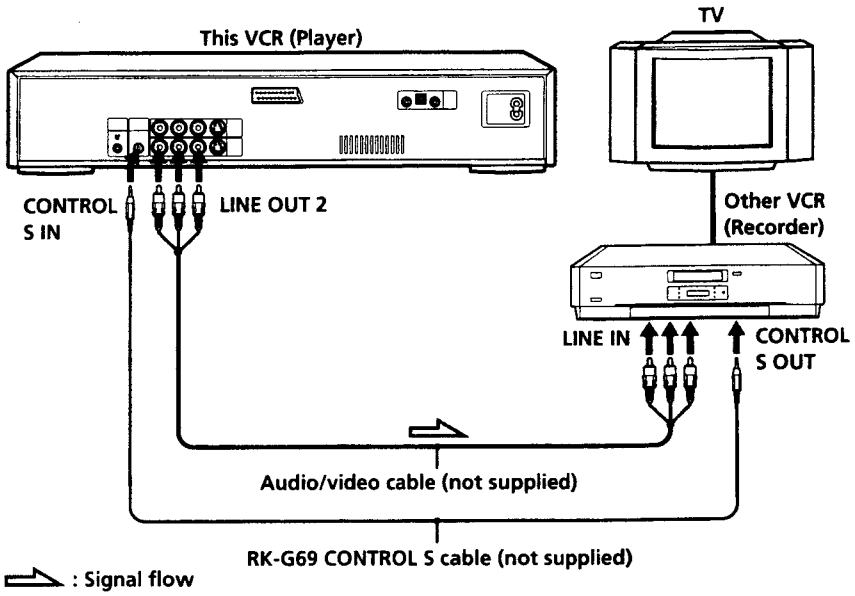
Notes

- If the recording VCR has an S video input connector, use the supplied S video cable. This connection gives you a picture of higher quality than using the video cable.
- If the recording VCR is a monaural type, connect the white plug to the LINE OUT 2 AUDIO L (white) jack on this VCR.



How to hook up via the CONTROL S jacks

The CONTROL S connection only enables you to pause and release pause if the other VCR has a synchronized edit function. Use the LANC jack if the recording VCR has both LANC and CONTROL S jacks.



Operation (when recording on the other VCR)

Before you start editing

On this VCR

- Press the EDIT ON/OFF button to turn on.

On the recording VCR

- Select LANC mode M.
- Select the tape speed, SP or LP.
- If available, activate the EDIT mode.

1 **Insert a source tape into this (playback) VCR. Press ▷ PLAY to search for the point to start playback and press II PAUSE.**

2 **Insert a tape for recording into the other (recording) VCR. Search for the point to start recording and set it to pause mode.**

3 **Press the recording button on the other VCR to set it to recording pause mode.**

4 **To start editing, press SYNCHRO EDIT on the other VCR.**

5 **At the point you want to stop recording, press SYNCHRO EDIT to stop editing.**
Both VCRs return to pause mode.

To stop editing

Press the ■ STOP buttons on both VCRs.

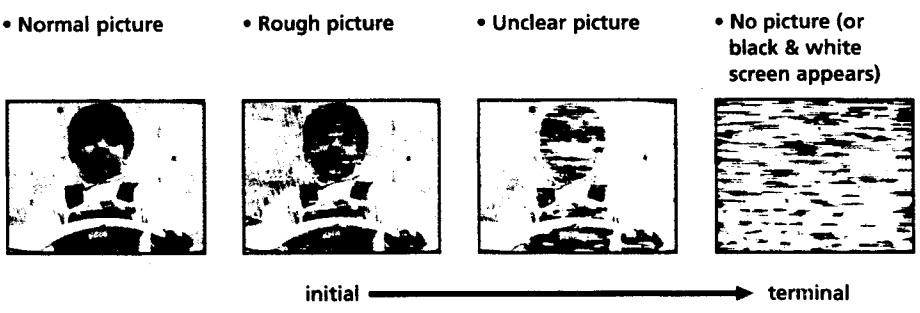
MC-Service

Additional Information

Troubleshooting

	Symptom	Remedy
Power	The ON/STANDBY switch does not function.	• Connect the mains lead securely.
Playback	The playback picture does not appear on the TV screen.	• Make sure the TV is set to the programme position for the VCR, or set it to the video input.
	The picture is not clear.	• Adjust the tracking with the TRACKING ADJUST menu. • The video heads are dirty (see below). Clean the video heads using the Sony video head cleaning cassette. If this cleaning cassette is not available in your area, have the heads cleaned at your nearest Sony service station (a standard service charge will be required). Do not use a commercially available wet-type cleaning cassette, as it may damage the video heads. • The video heads may have to be replaced. Consult your local Sony dealer for more information.
Recording	The tape ejects when you press ● REC.	• Check that the safety tab has not been slid to show the red portion.
	Nothing happens when you press ● REC.	• Make sure the tape has been wound to the beginning. • Select the correct source with the INPUT SELECT button. Select "L1," "L2," or "L3."
Others	A tape cannot be inserted.	• Check that a tape isn't already in the tape compartment.
	The remote commander does not function.	• Make sure you are pointing the remote commander at the remote sensor on the VCR. • Replace the all batteries in the remote commander with new ones if they are weak. • Set the COMMAND MODE selector to the same position on both the VCR and the remote commander.
	The VCR needs to be cleaned.	• Clean with a dry, soft cloth, or a soft cloth slightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine.
		If you have any questions or problems concerning your unit, please consult your nearest Sony service station.

Symptoms caused by contaminated video heads



Specifications

System

Video recording system
Rotary two-head helical scanning FM system

Audio recording system
Standard: Rotary head FM system (2 channls)

Video signal
CCIR standard, PAL colour

Usable cassettes
8 mm video format cassettes

Tape speed
SP: 20.051 mm/sec.
LP: 10.058 mm/sec.

Recording/ playback time
SP: 2 hrs., LP: 4 hrs. (using a Sony E5-120 cassette)
SP: 1.5 hrs., LP: 3 hrs. (using a Sony E5/P5-90 cassette)

Fast-forwad/rewind time
2 min. 15 sec.
1 min. (high-speed rewind) (using a Sony E5/P5-90 cassette)

Inputs and outputs

EURO-AV: LINE 1
21-pin
Video input: pin 20
Audio input: pins 2 and 6
Video/luminance output: pin 19
Chrominance output: pin 15
Audio output: pins 1 and 3

LINE IN 2 and 3
S VIDEO IN (4-pin mini DIN) 1 each
Y: 1 Vp-p 75 ohms (unbalanced), sync negative
C: 0.3 Vp-p (colour burst) 75 ohms (unbalanced)
VIDEO IN (phono jack) 1 each
Input signal: 1 Vp-p, 75 ohms (unbalanced), sync negative
AUDIO IN (phono jack) 2 each
Input level: –7.5 dBs (0 dBs = 0.775 Vrms)
Input impedance: more than 47 kilohms

LINE OUT 2
S VIDEO OUT (4-pin mini DIN)
Y: 1 Vp-p 75 ohms (unbalanced), sync negative
C: 0.3 Vp-p (colour burst) 75 ohms (unbalanced)
VIDEO OUT (phono jack)
Output signal: 1 Vp-p, 75 ohms, (unbalanced), sync negative
AUDIO OUT (phono jack)
Standard output: –7.5 dBs at load impedance 47 kilohms
Output impedance: less than 10 kilohms

LINE OUT 3
VIDEO OUT (phono jack)
Output signal: 1 Vp-p, 75 ohms (unbalanced), sync negative
AUDIO OUT (phono jack)
Standard output: –7.5 dBs at load impedance 47 kilohms
Output impedance: less than 10 kilohms
RFU DC OUT (special mini-jack)
5 V DC

CONTROL S IN
Minijack

LANC
Stereo mini-minijack

General

Power requirements
220 – 240 V AC, 50 Hz

Power consumption
20 W

Operating temperature
5°C to 40°C

Storage temperature
–20°C to 60°C

Dimensions
Approx. 430 × 86 × 390 mm (w/h/d) including projecting parts and controls

Weight
Approx. 5.0 kg

Supplied accessories

Remote commander (1)
R6 (size AA) batteries (2)
Mains lead (1)
S video cable (1)
LANC cable (1)

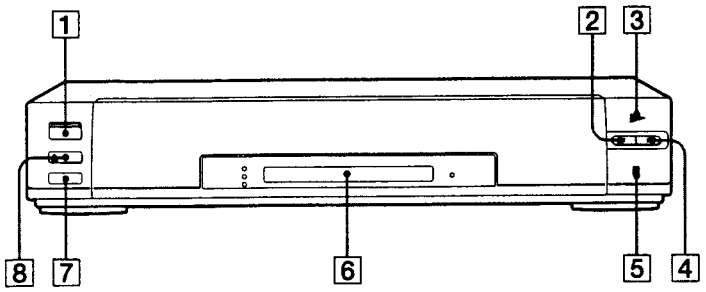
Design and specifications are subject to change without notice.

MC-Service

Index to parts and controls

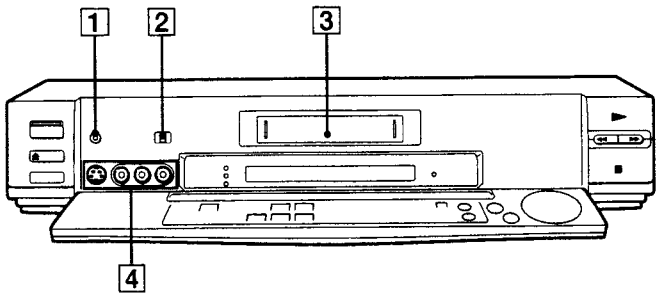
Refer to the pages indicated in ( ) for details.

Front panel (with cover closed)



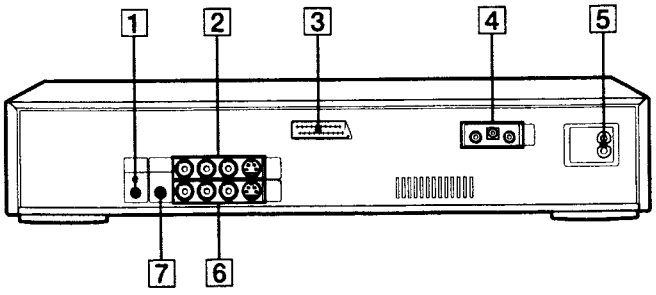
1 ON/STANDBY switch/indicator
2 ◀◀ REW button/indicator (10)
3 ▷ PLAY button/indicator (10)
4 ▶▶ FF button/indicator (10)
5 ■ STOP button (10)
6 Display window
7 Remote sensor
8 ⏏ EJECT button

Front panel (with cover opened)



1 LANC jack (25)
2 COMMAND MODE VTR/OFF/1/2/3 selector (7)
3 Tape compartment
4 LINE IN 2 AUDIO/VIDEO/S VIDEO jacks (23)

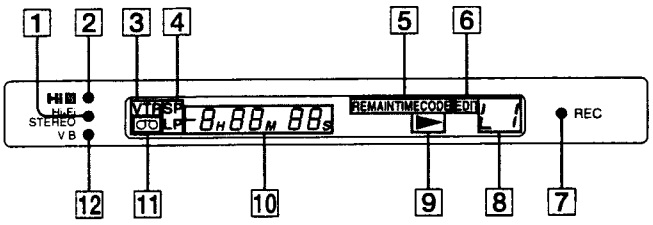
Rear panel



1 LANC jack (25)
2 LINE IN 3 AUDIO/VIDEO/S VIDEO jacks (23)
3 EURO-AV (LINE 1) connector (8)
4 LINE OUT 3 AUDIO/VIDEO/RFU DC OUT jacks (9)
5 AC IN connector
6 LINE OUT 2 AUDIO/VIDEO/S VIDEO jacks (23)
7 CONTROL S IN jack (26)

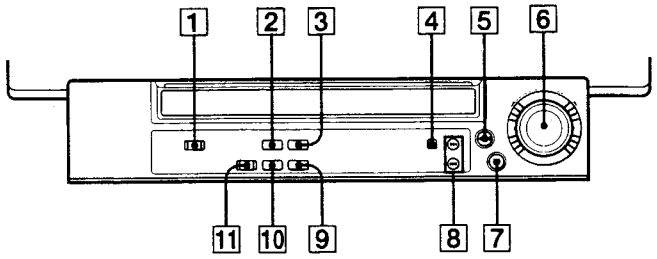
Index to parts and controls
(continued)

Front panel display window



1 Hi-Fi STEREO indicator (11)
2 Hi8 indicator (5)
3 VTR indicator
4 SP/LP (tape speed) indicators (12)
5 REMAIN TIME/TIME CODE indicators (11)
6 EDIT indicator (26)
7 REC indicator (12)
8 Input mode indicator (12)
9 Tape operation indicator
10 Linear time counter/remaining tape length indicators (11)
11 Tape indicator
12 VB (Voice Boost) indicator (15)

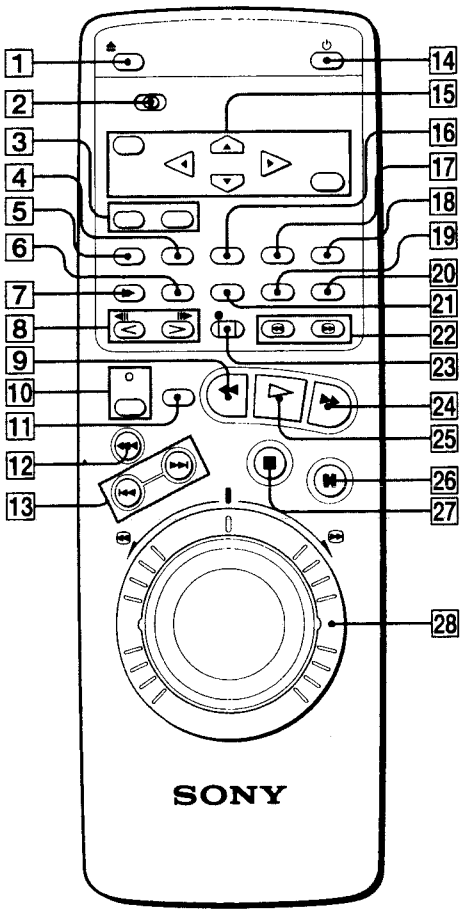
Operation panel



1 INPUT SELECT button (12)
2 TIME CODE WRITE button/indicator (20)
3 COUNTER SELECT button (11)
4 EDIT ON/OFF button (26)
5 ◀◀◀ HI-SPEED REW button (10)
6 JOG dial/SHUTTLE ring (14)
7 ❚❚ PAUSE button (10)
8 ⏮ / ⏭ INDEX SEARCH buttons (18)
9 COUNTER RESET button (11)
10 TAPE SPEED (SP/LP) button (12)
11 ● REC button (12)

MC-Service

Remote commander



1 ⏏ EJECT button
2 COMMAND MODE VTR 1/2/3 selector (7)
3 INDEX MARK/ERASE buttons (19)
4 TAPE RETURN button (14)
5 AUDIO MONITOR button (11)
6 X2 (double speed) button (14)
7 ▮► SLOW button (14)
8 ◄▮▮/▮▮► FRAME </> buttons (14)
9 ◄◄ REW button (10)
10 JOG/SHUTTLE button/indicator (14)
11 DIGITAL SCAN button (14)
12 ◄◄◄ HI-SPEED REW button (10)
13 ⏮/⏭ INDEX SEARCH buttons (18)
14 ⏻ (on/standby) button
15 Menu buttons (16)
MENU button
▲/▼/◄/► CURSOR buttons
EXECUTE button
16 COUNTER RESET button (11)
17 COUNTER SELECT button (11)
18 DISPLAY button (10)
19 INPUT SELECT button (12)
20 VB (VOICE BOOST) button (15)
21 TAPE SPEED (SP/LP) button (12)
22 ⏪/⏩ SEARCH buttons (10)
23 ● REC button (12)
24 ►► FF button (10)
25 ▷ PLAY button (10)
26 ▮▮ PAUSE button (10)
27 ■ STOP button (10)
28 JOG dial/SHUTTLE ring (14)

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